

REMARKS/ARGUMENTS

Prior to this Amendment, claims 1-17, 33-36, and 40-44 were pending in the application.

Independent claim 42 is amended to further clarify that the imprecise identification prevents a direct match or link between a transaction record and any stored reference records, which is in direct contrast to the precision required by the cited references.

New dependent claims 45-49 are added to further define what an imprecise transaction record may include and how the imprecision-resolution or matching steps of claim 33 would be useful in resolving this imprecision. No new matter is added with support found, for example, in paragraphs [0023], [0024], and [0034].

After entry of the Amendment, claims 1-17, 33-36, and 40-49 remain for consideration by the Examiner.

Rejections under 35 U.S.C. 103

In the Office Action, claims 1-17, 33-36, and 40-44 were rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Pat. Appl. Publ. No. 2004/0199506 ("Shaffer") in view of U.S. Pat. Appl. Publ. No. 2004/0064351 ("Mikurak"). This rejection is respectfully traversed based on the following remarks.

First, as to the use of Mikurak as a 35 U.S.C. §103 reference, Applicants have closely studied Mikurak and believe it fails to overcome the deficiencies of Shaffer. However, Applicants also protest the use of Mikurak because it is only effective as a reference for what is taught in the parent applications and not for any material added to the parent applications. Specifically, Mikurak is a continuation-in-part (CIP) application based on 4 patent applications filed in 1999. Mikurak can only be used as a reference against Applicants' claimed invention for what was presented in these parent applications because Mikurak was filed April 4, 2003, which is after Applicants' priority date of October 23, 2002. With this in mind, Applicants request that the Examiner provide citations to the detailed support found in one or more of the parent applications

for the portions of Mikurak that are cited in the Office Action or to withdraw the rejections of the claims based on this reference. The Mikurak reference is nearly 200 pages long, and it would place an unreasonable burden on Applicants to verify that Mikurak is a proper 103 reference by reading each of the four parent applications. Further, three of the parent applications are not available on the public PAIR system so they may be difficult or impossible for Applicants to obtain and the fourth referenced parent is now U.S. Pat. No. 6,230,697 entitled "Integrated Internal Combustion Engine Control System with High-Precision Emission Controls," which appears to be unrelated (listed in error on the cover of Mikurak).

Second, this application has had a fairly long prosecution, but Applicants believe there is still a disconnect between how they have been explaining their invention and what the Examiner believes Applicants' are arguing as important and distinguishing features of the invention. Briefly, Applicants invention is directed to a method for improving the resolution of input transaction or channel data so as to provide a more accurate match to previously stored reference records. This process is unique in one way because it can take an input transactional record that has imprecision such as misspelled words, incorrect company names, errors in addressing, and other errors or input data that makes it difficult or impossible to match the input data to a reference record with any certainty. These problems are detailed in paragraphs [0004] to [0007] of Applicants' specification. A definition of "transaction information" or records is provided in paragraph [0017] and makes it clear that the inventive process does not require precision in the transaction records. Paragraphs [0020] and [0021] discuss common errors that "make precise identification of a customer difficult" and how the invention overcomes these imprecisions or errors "by using location information" "to select one or more reference records from a database of known information" (e.g., by spatial matching using location information to identify one or more businesses that may be a match for the imprecise transaction data). Then, lexical matching is used against this smaller subset of candidate businesses or reference records to identify a single matching reference (when possible). Paragraphs [0023] to [0028] provide further detail, and these descriptions make it clear that imprecise or even error-filled input can be effectively used to match a transaction record to a precise, known-to-be-correct

reference record. None of the references cited during the prosecution of this application have addressed the problem of how to handle imprecise input data or have suggested that geocode matching should be combined with the use of lexical matching to resolve a set of candidates into a single matching record. For example, how would Shaffer handle an identifier input by a user that was provided with errors? No discussion is provided in the reference, and it is likely that it would simply provide an error message or "user unknown" message and stop.

More specifically, the Response to Arguments at the bottom of page 5 to page 6 argues that Shaffer does teach the idea of receiving and processing imprecise data in paragraphs [0061] and [0116]. Applicants strongly disagree that Shaffer addresses imprecise input data at these citations or anywhere else. In paragraph [0061], Shaffer teaches that once "an identifier" such as a telephone number (which is the consumer or user input or provided LKIPV or Linkage Key Input Parameter Value) is known a "merchant server" can be provided with various data by matching the identifier with one or more database records. The LKIPV or identifier is precise or error free to allow matching with certainty to various data records linked to that user or consumer. Again, Applicants request that the Examiner provide a citation in Shaffer that states that the LKIPV is received with errors or imprecise information and that Shaffer resolves this imprecision as called for in the pending claims. In paragraph [0116], Shaffer discusses how to handle the receipt of numerous consumer requests by inserting an additional parameter to identify the transaction, but there is no discussion that the request is imprecise or that the consumer is defined in error.

Further, Shaffer fails to discuss the receipt and processing of imprecise input in the other portions of the application. The input in Shaffer is generally LKIPVs that are defined in paragraph [0048] and none of the examples provided are "imprecise" such as 10-digit telephone numbers. No imprecision is inserted in the Shaffer process when the LKIPV is used to determine a "Linkage Key" as explained in paragraph [0050]. The linkage key is a very precise value such as a telephone number or a 9 digit zip code. An overview of the Shaffer process is provided in paragraph [0056] and it can be seen that the LKIPV is provided by the consumer computer and it is then converted to the

Linkage Key that is in turn used to access indexed databases to return information to the requesting consumer. Again, there is no mention that either the LKIPV or the Linkage Key may be imprecise. The examples of operation of the Shaffer system also fail to mention or even suggest problems with imprecision. See, for example, the example described in paragraph [0067] in which lat/lon coordinates are provided from the consumer browser as the LKIPV and this information is used to provide a nearest pizza chain restaurant. There is no need for, or teaching of, resolving imprecise input data in Shaffer and, additionally, there is no need to resolve the set of pizza chains using lexical matching as distance from the input LKIPV is used to obtain a match. Further study of Shaffer, such as at paragraphs [0072], [0076], [0086] to [0088], and [0102], supports the conclusion that Shaffer's process relies on the LKIPV and the Linkage Key being precisely defined at all times and there is no discussion whatsoever of imprecise information and how to process such information.

Turning first to independent claim 33, it is clear that Shaffer fails to teach or suggest at least the generating and the geo-coding steps of the claimed method. The generating step requires "generating a transaction record comprising data that imprecisely identifies at least one channel participant." As discussed above, Shaffer fails to teach or suggest that its input LKIPV or any of its transaction records are imprecisely identified. In rejecting claims 1 and 33, the Office Action cites to paragraphs [0061] and [0116], but as discussed above, these paragraphs fail to mention any imprecision in the LKIPV, in other identifiers or consumer requests, or even in the Linkage Keys. Further, as discussed above, Applicants could find no suggestion that imprecision in input or linking information can be tolerated by the Shaffer process. Therefore, Applicants respectfully request that the rejection of claim 33 be withdrawn as unsupported by the references. Note, Mikurak is not cited for teaching this limitation (and fails to overcome this deficiency as discussed detail below). Dependent claims 45-47 are added to further define what "imprecise" may mean in some embodiments, and Applicants believe that each of these added limitations further distinguish the claimed method from that taught by the combination of Shaffer and Mikurak.

The references also fail to show the step of “providing a reference record database comprising a plurality of reference records where each reference record comprises business information having greater precision than the transaction record and each record is associated with a spatial identifier.” Applicants could not find teaching of this step in Shaffer or Mikurak. Therefore, Applicants request that the Examiner provide a specific citation to Shaffer or Underwood of a database with reference records having business information with “greater precision” than the transaction record that that each such record is associated with a spatial identifier. The Response to Arguments cites to paragraphs [0061] and [0116] of Shaffer providing this teaching but, as discussed above, there is no teaching that there is imprecision in the LKIPV and there is no teaching in the cited paragraphs that the databases include more precise versions of the LKIPV. Hence, claim 33 is believed allowable for this additional reason. Dependent claims 48 and 49 are added to further stress that the greater precision information includes particular fields or data that was provided in the transaction record in imprecise form (e.g., a misspelled business name may be provided with known accuracy or greater precision in the reference record and spatial identifiers based on the transaction record location information may be used to identify likely matching reference records). The use of such greater precision information in the manner claimed is not shown in either of the references.

Yet further, the references do not show the step of “identifying more than one reference record...by matching the spatial identifier of the transaction record with spatial identifiers associated with reference records”. The Office Action asserts that Shaffer teaches a matching mechanism as claimed in claim 1 at paragraphs [0061], [0064], and [0149]. However, there is no discussion in these paragraphs of identifying “more than one reference record.” As discussed above, Shaffer is not addressing ambiguities and, instead, is a precise matching algorithm that is based on indexes that have a single match. Additionally, there is no teaching in Shaffer that the identifying of more records shall be done by matching a spatial identifier generated for a transaction record with those associated with reference records.

Mikurak is cited at paragraphs [0222], [1332], and [1790] in the rejection of claim 1. Applicants' review of Mikurak did not show the identifying step of claim 33 and Applicants did not see a mention of matching of more than one record using spatial identifiers. In paragraph [0222], Mikurak discusses a service provider 506 in Figure 5 that provides an "open access channel" but there is no discussion of identifying more than one reference record by matching spatial identifiers. In paragraph [1332], discusses how the Mikurak technology may be used to enforce electronic rights and to control digital content over the "electronic highway" but provides no teaching of identifying records by matching spatial identifiers. In paragraph [1790], the Mikurak technology or "WAF" is described as "supporting a transaction/distribution control standard" and, again, being useful for allows those in electronic commerce to control content. There is no teaching in the cited portions of Mikurak that seem even remotely relevant to Applicants' invention and, particularly, the "identifying" step of claim 33. Hence, claim 33 is further allowable over the two references fail to teach the identifying step.

More generally, Mikurak fails to overcome the deficiencies of Shaffer discussed above as it provides no teaching of how imprecise input data may be processed to obtain matches to reference records (that may include greater precision information). As with Shaffer, Mikurak deals only with precise identities (e.g., customers and partners). Any possible candidate identification mechanism in Mikurak only deals with creating lists of candidates based on simple filters from which a user selects one. This is much different from method of claim 33 and from the candidate identification mechanism of claim 1. Briefly, Mikurak does not teach creating candidates by applying a mix of spatial and lexical rules to imprecise transactional data or that these candidates are subsequently evaluated by a scoring algorithm to come up with a "best" match (see, for example, claims 15 and 16).

Injecting any imprecision into the Mikurak process would corrupt the system, and Mikurak, as with Shaffer, does not acknowledge any ability to handle imprecise data (especially learning it and adding it to the internal database as may be the case with a learning – see claims 40 and 41). As a result, Applicants assert that not only do Shaffer

and Mikurak fail to combine to teach Applicants' claimed invention, but both of these references **teach away** from the claimed systems and methods. Both of these references REQUIRE precise input data or precise matching to function, and hence, these references would encourage a systems designer to block input transaction records that imprecisely defined entities or includes information with spelling or other errors. Applicants' method, in contrast, does not require precision in the input and is specifically designed to handle imprecision.

Yet further, there is no motivation to combine Shaffer and Mikurak or, more significantly in this case, to modify either to arrive at the Applicants' invention (as mere combination would not provide the claimed invention). The only teaching of imprecise input data is provided in Applicants' specification, and this teaching cannot be the source of the motivation to combine the references or to modify them to process imprecise records. The reason for combining the references provided by the Examiner at the top of page 3 is because it "would have given those skilled in the art an efficient tool to identify candidate data from a variety of associated database in regards to data transaction. This gives users the advantage value of efficiently determining record data via data from transaction information faster." This statement fails to indicate that either reference was attempting to solve the problem of imprecise data needing to be resolved and the fact that imprecise data may lead to more than one match or record being identified that may require lexical matching or scoring algorithms to resolve. Applicants assert that without their own teaching there is no motivation to modify either of the references to address problems with imprecise identification data in transactional records. Without such motivation, the combination of the two references is improper and any rejections based on the references should be withdrawn.

For all these stated reasons, Applicants request that the rejection of claim 33 based on Shaffer and Mikurak be withdrawn, and claim 33 and claims 34-36 and 45-49, which depend from claim 33, be allowed.

Turning now to claim 1, this claim calls for, among other things, transaction data related to a channel participant. Applicants maintain that Schaffer does not show

transaction data. As discussed in the prior response, the Office Action states that the linkage key contains the ability to process transactions. However, "containing the ability" to perform a claim limitation is not a proper standard under 35 U.S.C. 103. Moreover, the linkage key does not relate to any particular transaction. The linkage key is provided explicitly by a customer or derived from information provided by a customer such as the LKIPV, and does not come from a transaction nor is it related to a transaction (i.e., the LKIPV is not transaction data). The Examiner has never addressed these comments in any of the Office Actions to date nor is this basic difference between Shaffer and the system of claim 1 discussed in the Response to Arguments of the recent Office Action. The Office Action cites Shaffer at paragraphs [0061] and [0116] for this limitation of claim 1. However, paragraph [0061] discusses a merchant can be provided with "median income data, property value data, census data, business and government location data, and other data related to the spatial location of the consumer." Paragraph [0116] discusses an identification string. None of this information teaches "transaction data related to at least one channel participant" (e.g., see Figure 2 for examples of transaction data). For this reason alone, claim 1 is not shown by Shaffer, and Mikurak is not cited for overcoming this deficiency.

Further, claim 1 calls for a candidate identification mechanism for "determining more than one candidate reference record from one of the reference record databases using spatial and business data derived from the transaction data." Shaffer fails to show such a candidate identification mechanism. The Office Action agrees that Shaffer does not show this mechanism, but it cites Mikurak for overcoming this deficiency of Shaffer. As discussed with reference to claim 33, the citations of Mikurak do not appear to provide any discussion or teaching of a candidate identification mechanism that uses "spatial and business data derived from the transaction data" to determine more than one candidate reference record. Applicants request that the Examiner withdraws the rejection or provides a citation that shows Mikurak teaches identifying multiple candidate records using both spatial and business data.

As discussed in a prior response, Shaffer does not entertain the concept of more than one candidate record. Shaffer teaches that an identifier will unambiguously point

to a single, specific database record in any given database. In fact, Shaffer's system would fail if the identifier pointed to more than one record. One example of where Shaffer's method would fail is multiple businesses residing at the same address (such as in the same office building). In this case each business would have the same spatial identifier (and hence be ambiguous) until subsequent lexical or other non-spatial matching techniques were applied. In contrast, the invention of claim 1 recognizes that in real-world situations transaction data is often ambiguous. The invention of claim 1 allows for identification of more than one candidate record.

Further claim 1 calls for a matching mechanism that is used to match a subset of the candidate records (e.g., one candidate record) to the transaction data. Shaffer and Mikurak do not need to use matching mechanism for this purpose and if their teaching is combined the system of claim 1 is not achieved. The Office Action cites to Shaffer at paragraphs [0061], [0149], and [0064] for teaching this matching mechanism for matching a subset of the candidate records to the transaction data. In paragraph [0061], Shaffer states that an identifier can be used to provide data to a merchant server, but there is no discussion of matching a subset of candidate records to transaction data (i.e., where is a first identification of a candidate set of this data and then a matching of only a subset of this data?). In paragraph [0149], Shaffer teaches using a "DUNs" number to access a corporate database to "obtain names of corporate officers and credit history information." This fails to teach taking a set of candidate reference records and determining a matching subset of them to match to transaction record (i.e., the names and credit history is retrieved but there is no processing to narrow the retrieved information to a subset of data that better matches some criteria or, in this case, better matches transaction data). In paragraph [0064], Shaffer teaches the forwarding of retrieved information to a second merchant server but, again, there is no discussion of matching or selecting a subset of such information to better match some criteria such as a transaction record. Since Shaffer also fails to shown the matching mechanism of claim 1, claim 1 is believed allowable over Shaffer and Mikurak for this additional reason.

Claims 2-17, 40, and 41 that depend from claim 1 are allowable for at least the same reasons as claim 1 and because of the individual limitations presented in those dependent claims. Further, Shaffer does not show or suggest lexical matching as called for in claims 13-15. Shaffer is cited again at paragraphs [0061] and [0116] for teaching the claimed lexical matching. However, **the cited portions of Shaffer et al. have nothing to do with lexical matching.** Paragraph [0061] discusses providing a set of data to a merchant server and paragraph [0116] discusses an identification string to a requested image. Clearly, neither of these paragraphs teaches nor even suggests the lexical matching of claims 13-15. The Response to Arguments provides no rebuttal to this argument, and Applicants respectfully request that the Examiner reconsider the rejection of all claims that combine spatial matching with lexical matching because no reference to date has shown such a combination. The Examiner is also encouraged to reread paragraphs [0028] and [0029] of Applicants' specification for an explanation of lexical matching may be used as called for in claim 13 to narrow a list of candidate reference records down to a subset that may be matches for a transaction record.

The combined use of spatial and lexical matching to resolve imprecision or to better match transaction data has proven very effective for Applicants and has resulted significant acceptance of their product in the marketplace. As a result, Applicants added independent claim 42 that combines the imprecise identification feature called for in claim 33 with the combination of spatial matching with later lexical matching as called for in claim 13. Hence, the reasons provided for allowing claims 1, 13, and 33 are all believed applicable to claim 42. The Office Action rejected claim 42 based for the reasons provided for claims 1 and 33, but this indicates that the additional lexical matching was not examined or given proper patentable weight. Hence, Applicants request that the Examiner provide specific citations to Shaffer and/or Mikurak for lexical processing of imprecise information as required in claim 42 or that the rejection be withdrawn.

Also, the portions of Shaffer cited in the Office Action do not show or suggest any selection process as called for in claims 16-17 (i.e., paragraph [0120] discusses the identifier string and cookie data files and nothing about lexical matching and a selection

process based on lexical matching and corresponding scores; paragraph [0122] discusses consumer telephone numbers and income levels; and paragraph [0182] discusses geodemographic systems). Hence, claims 16-17 are believed allowable over Shaffer and Mikurak for these additional reasons.

With respect to claims 40, 41, and 44, these claims call for the use of a learning database to create associations between transaction records and reference records that were not automatically matched. No citation to either Shaffer or Mikurak is provided for teaching the use of such a learning database in combination with the spatial matching of claim 1 or spatial and lexical matching of claim 42. As a result, a proper prima facie case has not been stated for rejecting these claims based on Shaffer and Mikurak. Applicants reviewed these two references and did not find a teaching or suggestion of the claimed limitations.

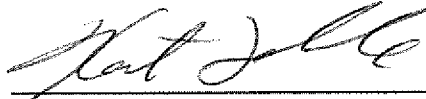
The Office Action on page 4 cited Underwood (a prior reference that is not indicated as being combined with Shaffer and Mikurak in the Office Action) for teaching learning libraries. The Examiner cited paragraph numbers that are not shown in the Underwood patent (which shows column numbers and line numbers), and Applicants are not clear on what is being cited. Regardless, from their review of Underwood, Applicants did not identify learning libraries, and clearly, Underwood does not show learning libraries that are "operable to hold records that create associations between information within transaction records that could not be automatically matched with reference records and the desired reference record." In other words, a proper reference would need to not only show a learning library but the specific type of learning library called for in claims 40, 41, and 44 (with claim 41 requiring manual intervention to create the association of claim 40). Accordingly, claims 40, 41, and 44 are allowable not only for the reasons stated in reference to claims 1 and 42, respectively, but also because Shaffer and Mikurak in view of Underwood do not teach their additional limitations.

Conclusion

In view of all of the above, the claims are now believed to be allowable, and it is requested that a timely Notice of Allowance be issued in this case. Any fee deficiency associated with this submittal may be charged to Deposit Account No. 50-1123.

Respectfully submitted,

11/17/06



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